TL-A Reduce Distance Traveled

The policy options listed in TLU-A Reduce Distance Traveled achieve GHG reductions through the reduction of carbon-based fuel consumption through the reduction of distance traveled.

TL-1 – Develop and Implement Aggressive Mass Transit Strategy[1]

Benefit/Cost of Reducing CO_2e:

New Mexico: 13.4 MMt between 2007-2020; 1.3% of 2020 emissions
N. Carolina: 31.3 MMt between 2007-2020; 1.1% of 2020 emissions

Assessment: High Priority. Bin B.

This policy option has the potential to significantly reduce GHG emissions and provide important co-benefits, but will require a concerted, long-term effort to implement.

Mass transit is included in long-range planning for the Wasatch Front. However the plans should be more aggressive and need to be fully-integrated and supported with adequate funding. Transit also offers important co-benefits such as improving air quality and congestion mitigation. Public support of the 2006 transit initiatives was high.

This is a long-term strategy needs to be developed in conjunction with quality growth land-use planning principles. To ensure success, mass transit options need to be convenient, reliable, and affordable. The strategy should consider the following program options:

- Methods for expanding government programs such as the UTA Eco-pass
- Educating the general public about transit options
- State and local incentives for increased utilization of mass transit.
- Optimized fares and enhanced subsidies are needed to encourage an optimal ridership rate ; a detailed analysis should be undertaken to determin the optimum rates for daily fare and monthly passes.[2]
- The State could assist with obtaining rights-of-way, park and ride lots, and traffic signal priority.
- Options that compliment mass transit, including shared ownership vehicles (e.g. Zipcars/Freedom cars), bike carriers, and pedestrian-friendly city planning, should be evaluated in long range plans.

[1] Old TL-1

[2] Current fare rates can create barriers to transit ridership. For example, it costs $12.00 for a family of four to take a round trip downtown by bus, remaining cheaper to drive an automobile. Approximately 16 percent of UTA operating expenses come from passengers fares.

TL-2 - Quality Growth Program[3] [4]

Benefit/Cost of Reducing CO_2e:

Arizona: 26.7 MMt between 2007-2020; 2.4% of 2020 emissions
New Mexico: 13.4 MMt between 2007-2020; 1.3% of 2020 emissions
Montana: 0.26 MMt between 2007-2020; 0.1% of 2020 emissions
Oregon: 0.4 MMt between 2007-2025; 0.4% of 2025 emissions; Cost effective
N. Carolina: 50.3 MMt between 2007-2020; 3% of 2020 emissions

Assessment: High Priority. Bin B.

This policy option could substantially reduce GHG emissions in the State, but is a longer-term option that will require significant effort to implement.

In Utah, 80% of the population lives along the rapidly growing Wasatch Front region. Smart growth is a vital component to any strategy that seeks to reduce CO2 emissions from transportation. The State of Utah should promote smart growth, including such community and transportation planning measures as compact, transit-oriented, walkable, bicycle-friendly planning, as well as mixed-use development with a range of housing choices. Such measures help reduce GHG emissions through a reduction in vehicle miles traveled (VMT). Congestion management is also important. Envision Utah and the Wasatch Front Regional Council should be consulted as guides for this policy option. An effective strategy should also include puiblic education and could include incentives to ensure the uptake of these measures.

Envision Utah recently released the findings of its Wasatch Choices 2040 project, including a Vision Scenario that reflects the preferences of participants in a visioning process that involved 1,000 area residents. The Vision Scenario steers 13% of new development (compared with 4% in a business-as-usual scenario) into walkable, mixed-use districts,[5] like those under development in Kennecott Land's new Daybreak community. Envision Utah's modeling results show a modest but measurable reduction in VMT in the Vision Scenario relative to business-as-usual.

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[3] Old TL-5
[4] Includes TL-14, TL-b
[5] Envision Utah, *Wasatch Choices 2040*. 2007

TL-3- Pay-As-You-Drive Insurance[6]

Benefit/Cost of Reducing CO_2e:

Arizona: 12.3 MMt between 2007-2020; 1.7% of 2020 emissions; no cost
New Mexico: 5 MMt between 2007-2020; 1.0% of 2020 emissions no cost
North Carolina: 35.8 MMt between 2007-2020; 2.0% of 2020 emissions; net savings

Assessment: High Priority. Bin B.

This policy option could result in signifcant GHG emissions reductions with potential cost savings. However, the State role in the implementation of this option is unclear and would require close coordination with the insurance industry.

"Pay-as-you-drive" (PAYD) insurance is a method to reduce the number of miles driven through converting a largely fixed cost, such as insurance, to a variable cost. A phased-in PAYD program could be an insurance company policy or product, but some action on the part of the state may be required to remove regulatory obstacles to changing the basis for premiums or to promote the program.

Consumers drive to the extent that they do in large part due to the fixed costs associated with driving. PAYD accomplishes this by making the rate paid by an individual depend heavily on the number of miles driven. Drivers would pay a portion of their premiums up front, and the remainder would be charged in proportion to mileage, as determined by a global positioning device or periodic odometer readings. In principle, this makes sense from the insurance industry's perspective as well, because those who drive fewer miles have lower accident exposure, on average. It is estimated that increasing the variable cost of driving through PAYD insurance can reduce vehicle use by 10-12 percent.[7] Reducing vehicle miles traveled will reduce emissions of both greenhouse gases and criteria pollutants.

Some PAYD pilot programs are already in place across the country. GMAC offers a mileage-based discount in Arizona, Indiana, Illinois, and Pennsylvania, and Progressive Insurance has a pilot program in Minnesota and is launching one in Texas, where the legislature has passed a bill allowing companies to offer mileage-based coverage. California recently approved regulations increasing the mileage-based component of insurance rates, and Oregon is providing tax credits to insurers offering pay-as-you-drive policies. Georgia is conducting a PAYD study, and Washington State, a pilot project, both funded by the Federal Highway Administration.[8]

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[6] Old TL-9

[7] Litman, T. 2005. Pay-As-You-Drive Vehicle Insurance: Converting Vehicle Insurance Premiums Into Use-Based Charges. *http://www.vtpi.org/tdm/tdm79.htm* . *Victoria Transportation Policy Institute.*

[8] Federal Highway Administration, *Value Pricing Project Quarterly Report October-December 2006* http://www.ops.fhwa.dot.gov/tolling_pricing/value_pricing/quarterlyreport/qtr4rpt06/index.htm; Sightline Institute, *Pay-as-You-Drive Pilot in Washington* http://www.sightline.org/daily_score/archive/2007/03/29/pay-as-you-drive-pilot-in-washington (2007).

TL-4 - Trip Reduction, Rideshare, Vanpool, Telecommuting[9] [10]

Benefit/Cost of Reducing CO_2e:

N/A

Assessment: Medium Priority. Bin D.

The current Commuter Trip Reduction program could be enhanced to provide larger GHC and air quality benefits over the longer run. The challenge with Commuter Trip Reduction programs is the ability to meet employees' diverse and changeable needs. Additional information is required to determine the GHC emissions reductions of this option.

UTA Rideshare currently provides marketing and promotion to eligible public and private enterprises for the following programs: teleworking, vanpool, guaranteed ride home, commuter choice, discount pass programs, carpool, bicycle, alternative work hours. These travel demand management measures are aimed at reducing commuter vehicle miles traveled during the peak travel periods, thereby reducing fuel consumption and GHG emissions. Enhancement of the existing program could achieve greater GHG emissions reduction benefits. In addition, the rapid and ongoing expansion and adoption of internet and telecommunications technologies may enhance opportunities for telecommuting over the longer run. Efforts taken by the State to help accelerate the deployment and acceptance of these technologies may yield additional GHG reduction benefits.

[9] Old TL-15
[10] Includes TL-16

TL-5 - Explore Shared Vehicle Ownership Programs (e.g. Flex-car, Zipcar)[11]

Benefit/Cost of Reducing CO_2e:

N/A

Assessment: Medium Priority. Bin D.

While shared vehicle ownership programs offer an intriguing compliment to mass transit and smart growth options, these programs appear to work best in high-density settings that may not be representative of the present-day Wasatch Front. More information is required to assign costs and benefits to this policy option.

The Flex-car[12] and Zipcar[13] members purchase a card which entitles them to use vehicles which can be picked up and dropped off at strategic locations around the community. Cars are parked around the city for members to drive by the hour instead of owning their own vehicles, thus encouraging use of mass transit and other modes of more efficient transportation.

The Zipcar website cites the following benefits:

- Over 40% of our members decide against purchasing a car, or end up selling their car.
- Car usage of individuals is reduced by as much as 50%.
- Members use the most efficient means of transportation for the task — walking, biking, public transportation, taxi or Zipcar.
- Each Zipcar replaces over 20 privately-owned vehicles. Older cars are replaced with new ones that have more stringent pollution controls

This strategy needs further research and is currently being evaluated by UTA. This type of strategy seems to work in higher-density areas and could compliment commuter rail.

[11] Old TL-c
[12] http://www.flexcar.com/
[13] http://www.zipcar.com/

TL-6 – "Buy Local" Program[14]

Benefit/Cost of Reducing CO_2e:

New Mexico: 5.9 MMt between 2007-2020; 1.1% of 2020 emissions; $0.2/ton

Assessment: Medium Priority. Bin B.

This policy option could yield GHG emissions benefits and could help support Utah's economy. However, additional research is required to determine the optimal form of such a policy and to assess its cost effectiveness.

The goal of "buy local" programs is to reduce vehicle miles traveled and associated GHG emissions through the encouragement of consumers to buy locally-produced goods. Such programs can include both incentives and consumer education. An important co-benefit of a "buy local" program is the support it lends the statewide economy.

[14] Old TL-d

TL-B: Improve Energy Efficiency Of Travel

TL-1 – Develop and Implement Aggressive Mass Transit Strategy[15]

Please see TL-1 under TL-A for detail on this policy option

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[15] Old TL-1

TL-7 - Promote Low-Carbon Fuels and Vehicle Technologies[16] (Statewide) [17] [18]

Benefit/Cost of reducing CO_2e:

Arizona: 6.2 MMt between 2007-2020; 0.7% of 2020 emissions
New Mexico: 9.1 MMt between 2007-2020; 1.7% of 2020 emissions; $-13/ton
Oregon: 1 MMt between 2007-2025; 1% of 2025 emissions; Cost effective
N. Carolina: 25.8 MMt between 2007-2020; 1.2% of 2020 emissions

Assessment: High Priority. Bin A.

This policy option could result in significant GHG reduction benefits. Some incentive programs are already in place in Utah, although they should be refined and expanded to extend GHG reduction and other benefits.

The State of Utah should promote low-carbon fuels and vehicle technologies. Examples could include low-carbon biofuels and other alternative fuels, hybrid, and plug-in vehicles. Incentives could include tax credits, HOV lane access, and parking advantages. Right sizing vehicles and vehicle fleets are also important methods to reduce carbon emissions from the automobile fleet statewide.

Currently in Utah, a tax credit and grant loan program exists for vehicles that utilize alternative fuels. This program provides incentives for natural gas and flex-fuel vehicles, but does not provide an incentive for off-the-shelf, market-ready high efficiency technology. Incentives should be fuel and technology neutral. Readily available technologies reduce GHG emissions through improved fuel efficiency through variable valve timing, cylinder deactivation, efficient transmissions, as well as hybrid drives, natural gas and cleaner diesel fuels.

A similar example being proposed on the national level is the OILSAVE Act recently proposed by Utah Senator Robert Bennett. The OILSAVE Act takes a technology-neutral approach and allows any vehicle with superior fuel efficiency to qualify for a credit, whether it uses hybrid or conventional technologies. Vehicles that are at least 25 percent more fuel efficient than the applicable CAFÉ standard for cars, trucks and SUVs, will get a tax credit of at least $630 and as much as $1860 for the most fuel efficient models. The consumer could claim the tax credit on his or her tax return or transfer it to an auto dealer – providing a "cash back" option to consumers at the time of purchase.

[16] Old TL-2a
[17] From TL-2; includes TL-8 and TL-9
[18] Old TL-2a.

TL-8 - State Fleet Lead by Example[19] [20]

Benefit/Cost of reducing CO_2e:

Arizona: 0.4 MMt between 2007-2020
Oregon: Cost effective

Assessment: High Priority. Bin A.

Although direct GHG reduction benefits are limited due to the small size of the State fleet relative to the total number of vehicles in Utah, this policy option demonstrates leadership by the State and can be readily implemented.

The State should lead by example in the purchase of low-carbon fuels and vehicle technologies. School district bus fleets offer an immediate opportunity to utilize these fuels and technologies, and implementation would have important air quality co-benefits for school children.

Refueling infrastructure limitations have made existing alternative fuel requirements for State fleets difficult to implement. Such limitations need to be addressed in concert with vehicle purchase decisions.

In addition to purchasing vehicles that use low carbon fuels, the State should prioritize the purchase of vehicles with high efficiency technologies such as variable valve timing, efficient transmissions and hybrid technologies. State fleets should "right-size" their vehicles, ensuring that the most fuel efficient vehicle is used for the task required.

In the 2007 legislative session, H.B.110 created a set of state fleet efficiency requirements. This legislation is results-oriented, while being non-prescriptive in how departments and divisions achieve efficiency improvements. The options would include right-sizing, efficiency technologies, and alternative fuels.

[19] Old TL-2b
[20] From TL-2

TL-9 - Clean Car Program[21]

Benefit/Cost of reducing CO_2e:

Arizona:	32.5 MMt between 2007-2020; 3.4% of 2020 emissions; -$90/ton
New Mexico:	10.4 MMt between 2007-2020; 1.9% of 2020 emissions; -$117/ton
Colorado:	14% reduction potential; -$100/ton
Montana:	5.2 MMt between 2007-2020; 2% of 2020 emissions; -$100/ton
Oregon:	6.24 MMt between 2007-2025; 6.5% of 2025 emissions; Cost effective
N. Carolina:	44.5 MMt between 2007-2020; 3% of 2020 emissions; -$100/ton

Assessment: High Priority. Bin B.

This policy option could substantially reduce GHG emissions in the State and result in a cost savings to consumers. However, this is a longer-term option that will require significant effort to implement.

Central to this policy option is the adoption of clean car standards already recognized by California and 12 other states. [22] Doing so would mean that new vehicles sold in Utah by each manufacturer would need to, on average, be 30 percent more efficient by 2016.

There is a high CO2 reduction potential, cost savings, and associated energy security and air quality benefits. Due to legal proceedings associated with this option, implementation may not be straightforward. However, in April 2007, the Supreme Court ruled that the Environmental Protection Agency has the authority to regulate CO_2 emissions from automobiles. The waiver for this program implementation is currently being decided.

In studies conducted in several western states, the adoption of a clean car program[23] has consistently been ranked as one of the most cost-effective greenhouse gas (GHG) emissions reduction strategies. This option was also found to have a large impact on total emissions, with projections ranging from 1.9 to 6.5 percent of total statewide emissions.

In the preliminary Utah Energy Efficiency Strategy analysis, this option is highly cost effective and yields very significant CO_2 reductions. The study found that savings in fuel costs over the lifetime of the projected eligible vehicles sold in Utah would equal about $1.41 billion (present value)[24]. Assuming 2006 price levels, this gives a net economic benefit of $1.16 billion (2006 dollars) over the life of the vehicles purchased in 2009-2015.[25] There may be other important economic factors that are not reflected in these

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[21] Old TL-4

[22] These states are: California, Connecticut, Maine, Maryland Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont, and Washington. States in which this program is being considered include Arizona, New Mexico, Minnesota, Nevada, Tennessee, and Texas.

[23] This program sets mandatory GHG emissions standards for light-duty vehicles and was enabled by California's AB1493

[24] This assumes an average15 year vehicle life, and that gasoline prices remain at their 2006 levels. This cost savings figure is likely conservative due to the likelihood of increasing fuel costs.

[25] The fuel savings exclude state gasoline tax (24.5 cents per gallon).

numbers. The study also found that if efficiency accounted entirely for the GHG emissions reductions, new vehicles would consume on average 22 percent less fuel in 2012, and 30% less fuel in 2016, than the average vehicle consumed in 2002. In addition, emissions of CO_2 could be reduced by 841,000 short tons in 2015 and by 1.86 million short tons in 2020, with additional upstream reductions.[26]

[26] Utah Energy Efficiency Strategy, preliminary results from review draft, June 2007

TL-10 - Idle-Reduction Program[27]

Benefit/Cost of reducing CO_2e:

Arizona: 11.8 MMt between 2007-2020; 0.8% of 2020 emissions; -$22/ton
New Mexico: 6.3 MMt between 2007-2020; 0.7% of 2020 emissions; $4/ton
Montana: 0.093 MMt between 2007-2020
N. Carolina: 1.9 MMt between 2007-2020; 0.1% of 2020 emissions; -$22/ton

Assessment: High Priority. Bin B.

This policy option can result in GHG emissions reductions and has important air quality co-benefits, particularly for school-aged children. Although some components of this policy option, such as an educational campaign, can be readily implemented, other components such as truck stop electrification systems will require greater effort over a longer period of time.

School buses, developing no-idle programs for public-sector buildings, and strategies for heavy-duty trucks should be the target for idle reduction programs. A school and school disctict program should be the priority due to the low cost, ease of implementation through district networks, high visibility, large impact, and significant co-benefits. Specific methods to reduce idling in the trucking industruy and at truck stops should be studied further due to varied settings and scenarios. Most of the idling for trucking occurs overnnight and at the loading/unloading point.

Preliminary results from a heavy-duty truck efficiency and idle reduction program and other efficiency measures analysed in the Utah Energy Efficiency Strategy found significant reductions of CO_2 (547,000 tons in 2020).[28]

Currently, Utah Clean Cities is working with the National Energy Foundation to develop an idle reduction education and training pilot program for bus drivers. Ten school districts in Utah and Nevada are currently participating in the program that will launch with the 2007-2008 school year. Utah Clean Cities is also working to introduce the program through national networks.

Other idle reduction resources include:

- The Utah Transit Authority (UTA), which uses block heaters and requires drivers to shut buses off after 10 minutes of idling.
- The Argonne National Laboratory Transportation Technology R&D Center, which has a program to help reduce vehicle idling, including an idle reduction calculator.[29]
- The Wasatch Front Regional Council, which has also allocated funding for idle reduction.

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[27] Old TL-6
[28] Utah Energy Efficiency Strategy, preliminary results from review draft, June 2007
[29] http://www.transportation.anl.gov/research/technology_analysis/idling.html, http://www.transportation.anl.gov/downloads/idling_worksheet.xls

TL-11 - Vehicle Speed Reduction[30]

Benefit/Cost of reducing CO_2e:

Arizona: 5.2 MMt between 2007-2020; 0.3% of 2020 emissions; $35/ton
New Mexico: 2.8 MMt between 2007-2020; 0.3% of 2020 emissions

Assessment: Low Priority. Bin D.

While this policy option could result in GHG emissions reductions due to greater fuel efficiency, it is likely to be politically and technically difficult to implement. The cost of implementing this policy option could range from revenue neutral to high depending on the policy components selected.

Due largely to aerodynamic drag, as vehicle speed increases, fuel efficiency is reduced. The speed at which fuel economy is highest varies, but is typically below 60 miles per hour for a light-duty vehicle.[31] Federal Highway Administration tests of nine vehicles in 1997 found that fuel economy declined on average by 3.1% when speed increased from 55 mph to 60 mph and by 8.2% increasing from 65 to 70 mph.[32]

A vehicle speed reduction policy option could include any of a handful of components, including, but not limited to enhanced enforcement of speed limits, reduced speed limits for commercial trucks, and other reduced speed limits. Recognizing the value of such strategies, the American Trucking Association supports a mandated national 68mph speed limit for safety and fuel economy reasons.

The Utah Energy Efficiency Strategy analyzed the fuel saving potential associated with better enforcement of Utah's speed limits and found that CO_2 would be reduced by 198,000 short tons per year in 2015 and 218,000 short tons in 2020. The cost of this program would be wholly or largely paid for by increased revenue from speeding fines. Co-benefits resulting from enhanced enforcement of speed limits include: reduced likelihood that an accident will be fatal due to reduced speeds. NOx emissions are also expected to decline with better enforcement of speed limits.

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[30] Old TL-12
[31] "Drive more efficiently," U.S.DOE and U.S. EPA, http://www.fueleconomy.gov/feg/driveHabits.shtml.
[32] *Transportation Energy Data Book*, 2006. Oak Ridge National Laboratory.

TL-12- Feebates[33]
(Fee on High GHG Vehicles; Rebates on Low GHG vehicles)

Benefit/Cost of reducing CO_2e:

North Carolina: 15.9 MMt between 2007-2020; 0.8% of 2020 emissions; Net savings

Assessment: Medium Priority. Bin C.

While this policy option has some GHG emissions reduction potential, it may be politically and administratively difficult to implement the fee component that is essential in order for the option to be revenue neutral.

A "feebate" is a comprehensive, market-based approach to promoting vehicle efficiency. Feebates are a system of rebates and surcharges based on vehicle fuel economy that are applied across a spectrum of vehicles. Part of the rationale for a feebate is that consumers tend to undervalue fuel economy when they are choosing a vehicle. A feebate can be designed to be revenue-neutral. Another positive feature of feebates is that they provide an incentive for improvement in vehicles of any efficiency level and continue to do so as long as the program remains in place.

Feebates have not been implemented anywhere in the U.S. to-date. California and Maryland passed feebate legislation in the early 1990s, and Connecticut in 2005; but none of these programs reached the implementation stage. However, several states are currently considering feebates.

[33] Old TL-8

TL-C: Reduce CO_2 Emissions Per Unit Of Fuel Consumed

TL-7 - Promote Low-Carbon Fuels and Vehicle Technologies[34]

Tl-8 - State Fleet Lead By Example[35] [36]

[34] Old TL-2a
[35] Old TL-2b
[36] From TL-2

TL-D: Program Enabler

Tl-13 - Education Program[37] [38]

Benefit/Cost of reducing CO_2e:
N/A

Assessment: High Priority. Bin A.

Education is a critical enabling component to the entire suite of transportation and land use policy options listed in this section. Many educational programs exist and other can be implemented to improve awareness and efficacy of transportation options in Utah.

The State of Utah should develop and adequately fund education programs focusing on transportation, including, but not limted to vehicle choice, transit options, vehicle maintenance, driving habits/speeding, and proper tire inflation.

[37] Old TL-a
[38] Includes TL-10

TL-14 – Explore Funding Options for the Suite of Transportation and Land Use Options

Benefit/Cost of reducing CO_2e:

N/A

Assessment: High Priority. Bin B.

Adequate funding is a critical enabler to several of the transportation/land use policy options. Resolving funding issues will require a sustained and concerted effort by political leaders and stakeholders.